CLAIMS

I claim:

1. A tap output collimator comprising:

a glass prism having a first incline surface and a second incline surface for receiving an input light beam for separating and projecting said input light beam into a downward projecting beam with a small downward projecting angle and an upward projecting beam with an upward projecting angle; and

a GRIN lens for focusing said upward and downward projecting beams into an output optical fiber and a tap out optical fiber respectively.

2. The tap output collimator of claim 1 further comprising:

a dual fiber capillary disposed at an output end of said GRIN lens for containing and disposing said output optical fiber and said tap out optical fiber on a focal point of said GRIN lens.

3. The tap output collimator of claim 1 wherein:

said first incline surface and second incline surface having a surface area ratio corresponding to a tap out ratio for projecting a portion of said input light beam to said tap out optical fiber according to said tap out ratio.

4. The tap output collimator of claim 1 further comprising:

an optical signal detector for measuring said downward projecting light beam projected to said tap out optical fiber.

5. A tap output collimator comprising:

a GRIN lens having a first incline surface and a second incline surface for receiving an input light beam for separating and projecting said input light beam into a downward projecting beam with a small downward projecting angle and an upward projecting beam with an upward projecting angle and for focusing said upward and downward projecting beams into an output optical fiber and a tap out optical fiber respectively.

6. The tap output collimator of claim 5 further comprising:

a dual fiber capillary disposed at an output end of said GRIN lens for containing and disposing said output optical fiber and said tap out optical fiber on a focal point of said GRIN lens.

7. The tap output collimator of claim 5 wherein:

said first incline surface and second incline surface having a surface area ratio corresponding to a tap out ratio for projecting a portion of said input light beam to said tap out optical fiber according to said tap out ratio.

8. The tap output collimator of claim 5 further comprising:

an optical signal detector for measuring said downward projecting light beam projected to said tap out optical fiber.

9. A dual beam collimator comprising:

a GRIN lens for collimating two input light from two fibers in dual fiber capillary; and

a glass prism having a first incline surface and a second incline surface for bending two collimated beams parallel each other and parallel to central axis of the collimator.

10. The dual beam collimator of claim 9 further comprising:

a dual fiber capillary disposed at an input end of said GRIN lens for containing and disposing a set of dual optical fibers at said input end of said GRIN lens.

11. A multiple beam collimator comprising:

a GRIN lens for collimating multiple input light from multiple fibers;

a glass prism having multiple incline surfaces and at least one normal surface, said incline surfaces are for bending said multiple beams collimated from off-axis fibers to be parallel each other and parallel to central axis of the collimator and the normal surface transmit the beam collimated from on-axis fiber without bending.

12. The multiple beam collimator of claim 11 further comprising:

a multiple fiber capillary disposed at an input end of said GRIN lens for containing and disposing multiple optical fibers.

13. A tap output collimator comprising:

a GRIN lens for receiving an input beam with a small incident angle relative to an optical axis of said GRIN lens;

a lens holder for holding said GRIN lens having a front portion extended beyond a front surface of said GRIN lens for holding a reflecting mirror at a distance away from said front surface of said GRIN lens;

said reflective mirror is disposed at a small incline angle relative to a perpendicular line to said optical axis of said GRIN lens; and

said GRIN lens further having a partially reflecting front surface for transmitting an output beam through and reflecting a portion of said input beam to said reflective mirror for reflecting said portion of said input beam into said GRIN lens with a tap out optical path separated from said incoming beam.

14. The tap output collimator of claim 13 further comprising:

a dual fiber capillary disposed at an output end of said GRIN lens for containing and disposing a set of dual optical fibers at said output end of said GRIN lens for receiving said output beam and said tap out beam from said GRIN lens.

15. The tap output collimator of claim 13 wherein:

said partially reflecting front surface of said GRIN lens having a transmission/reflection ratio corresponding to a tap out ratio for projecting a portion of said input beam to a tap out optical fiber according to said tap out ratio.

16. The tap output collimator of claim 13 further comprising:

an optical signal detector for measuring said tap out beam projected to a tap out optical fiber.

17. An optical component comprising:

a built-in tap-out projection means for projecting a portion of an incoming beam to a tap-out beam transmission means.

18. The optical component of claim 17 wherein:

said built-in tap-out projection means further comprising a front surface having an incline angle for projecting a portion of an incoming beam to a tap-out beam transmission means.

19. The optical component of claim 17 wherein:

said built-in tap-out projection means further comprising a prism having a pair of inclined front surfaces for projecting said incoming beam into an output beam and a tap out beam.

20. The optical component of claim 17 wherein:

said built-in tap-out projection means further comprising a partially reflective front surface and a reflective mirror projecting said incoming beam into an output beam and a tap out beam.